

CLAIMS:

1. An aluminum nitride junction body comprising two pieces of aluminum nitride sintered plates joined to each other, and a sintered metal layer of tungsten or molybdenum formed on a junction surface thereof, said sintered metal layer having a thickness of 15 to 100 μm , wherein a sheet resistivity of the sintered metal layer is not larger than $1 \Omega/\square$, warping of the sintered metal layer is suppressed to be not larger than $100 \mu\text{m}/100 \text{ mm}$, and a shear strength between the sintered metal layer and the aluminum nitride sintered plate on the junction surface is not smaller than 4 kg/mm^2 .
- 15 2. An aluminum nitride junction body according to claim 1, wherein the area ratio of the sintered metal layer on the junction surface is in a range of 50 to 90%.
- 20 3. A method of producing an aluminum nitride junction body comprising the steps of:
 - 25 providing two pieces of aluminum nitride sintered plates;
 - 30 forming a recessed portion in a surface of one aluminum nitride sintered plate;
 - 35 charging an electrically conducting paste containing, as a conductor component, a tungsten powder or a molybdenum powder having an average particle size (D_{50}) of not larger than $3.5 \mu\text{m}$ into the recessed portion;
 - 40 forming an adhesive layer by applying an adhesive paste containing aluminum nitride as an adhesive component onto a whole surface of the aluminum nitride sintered plate charged with the electrically conducting paste;
 - 45 dewaxing the electrically conducting paste and

the adhesive paste;

effecting a primary sintering while contacting
the other aluminum nitride sintered plate onto the
surface where the adhesive layer is formed of the
5 aluminum nitride sintered plate with a pressure of 0.5
to 10 MPa at a temperature of 1600 to 1700°C for 0.5
to 4 hours; and

10 effecting a secondary sintering at a temperature
of 1800 to 1900°C for 2 to 8 hours following the
primary sintering.

4. A method of producing an aluminum nitride
junction body according to claim 3, wherein the
electrically conducting paste is charged into the
recessed portion in an amount, calculated as a solid
15 component, of 1.05 to 1.5 times as great as the volume
of the recessed portion.

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